Lower Duwamish Waterway Record Of Decision

Fact Sheet

EPA United States Environmental Protection Agency

Region 10

December 2014

EPA Issues Final Cleanup Plan

The U.S. Environmental Protection Agency has released the cleanup Plan to clean up contamination in the Lower Duwamish Waterway (LDW) in South Seattle. The Record of Decision, or "ROD," presents the EPA's final cleanup Plan to reduce risks to people's health and the environment from toxic chemicals in the river. The Plan is based on different cleanup options that were presented in the Proposed Plan and includes consideration of the over 2,300 comments that EPA received. The Plan adds to the work already underway at Early Action Areas and work by the Washington Department of Ecology to control sources of pollution entering the Duwamish. All of these actions together will reduce contamination in the waterway by over 90 percent.

Why does the Duwamish need to be cleaned up?

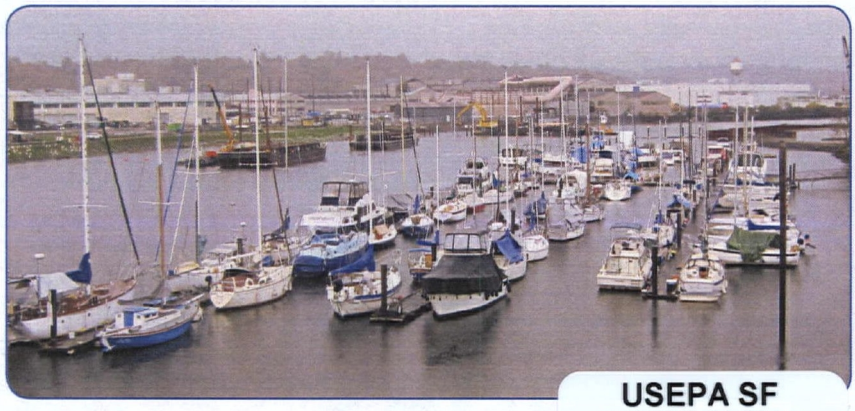
Over 100 years of industrial and urban use has polluted the sediments (mud) on the river bottom, water, and marine life in the river. Most of the risk to people comes from PCBs, arsenic, PAHs, dioxins and furans.

Many communities, businesses, and waterway users are affected by the pollution. South Park and Georgetown are communities along the Duwamish where people live, work and play. Public parks give people direct access to the river. Tribes have fished the Duwamish for centuries. Wildlife, including salmon, ospreys, and river otters live in, along, or migrate through the Duwamish. An active port and industrial facilities operate along the river.

Goals and Benefits of the Cleanup

The cleanup actions will help local communities, wildlife, and ecosystems by:

- Reducing health risks to people from contaminated sediments, fish and shellfish;
- Protecting plants and animals from the effects of toxics; and
- Improving the health of local fisheries.



Half of the Contamination Is Already Cleaned Up...

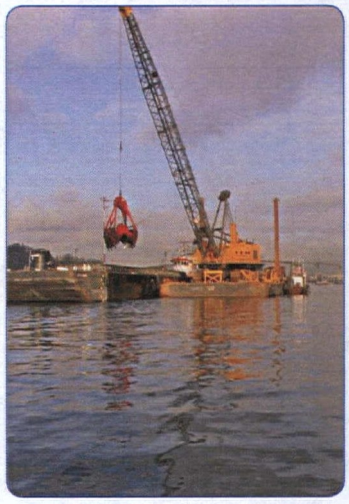
By the end of 2015, 50 percent of PCB contamination in the river bottom will have been removed through early action cleanups, including:

- Duwamish Diagonal
- Norfolk Combined Sewer Overflow
- Slip 4
- Boeing Plant 2/Jorgensen Forge
- Terminal 117

A map showing the early action areas appears on Page 5.

...and Now Work Starts on the Next Half

Building on these efforts, the Plan identifies achievable goals that get us the rest of the way to a healthier Duwamish. The Plan combines active cleanup measures, like dredging and capping, with passive ones, such as natural sedimentation. These measures reduce risks to people's health and the environment from toxic chemicals while ensuring that commercial activities continue in this important industrial area.



The final cleanup is estimated to cost about $342 million and is scheduled to take 17 years: 7 years of active cleanup and 10 years of monitored natural recovery. An estimated total of 177 acres will be actively cleaned up, consisting of:

- 105 acres of dredging or partial dredging and capping. An anticipated total volume of 960,000 cubic yards would be dredged;
- 24 acres of capping; and
- 48 acres of enhanced natural recovery.

What Are the Most Harmful Contaminants Found in the Duwamish?

There are many chemical contaminants in Duwamish sediment, fish, and shellfish. Most of the human health risk comes from the four chemicals discussed below:

PCBs (polychlorinated biphenyls) are man-made chemicals banned in 1979. They stay in the environment for a long time and can build up in fish and shellfish. PCBs impact the immune system and may cause cancer in people who have been exposed over a long time. PCBs can also affect learning abilities in children.

Arsenic is naturally present at low levels in Puget Sound area rock and soil. Industrial activities have spread additional arsenic over much of the Puget Sound region. Long-term exposure to toxic forms of arsenic may cause skin, bladder, and other cancers.

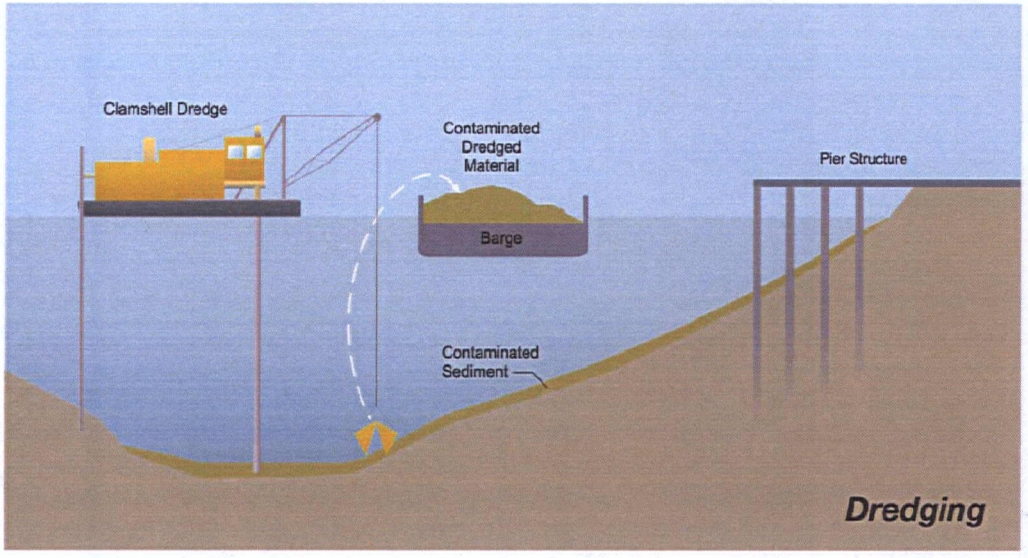
PAHs (polycyclic aromatic hydrocarbons) are formed during the burning of substances such as coal, oil, gas, wood, garbage and tobacco and during the charbroiling of meat. Long periods of breathing, eating, or having skin contact with high levels of some PAHs may increase a person's risk of cancer.

Dioxins and furans are by-products of burning (either in natural or industrial settings), chemical manufacturing and metal processing. Dioxins last a long time and can build up in fish and fatty foods. Toxic effects related to dioxins include reproductive problems, problems in fetal development or in early childhood, immune system damage, and cancer.

Cleanup Technologies

Several technologies will be used to clean up contaminated sediments in the waterway. Some technologies rely mostly on removal (dredging) and containment (capping). These are considered "active" technologies. Other methods, like natural recovery, are "passive," and rely on the natural flow and deposition of cleaner sediments from upriver to cover the contaminated sediments.

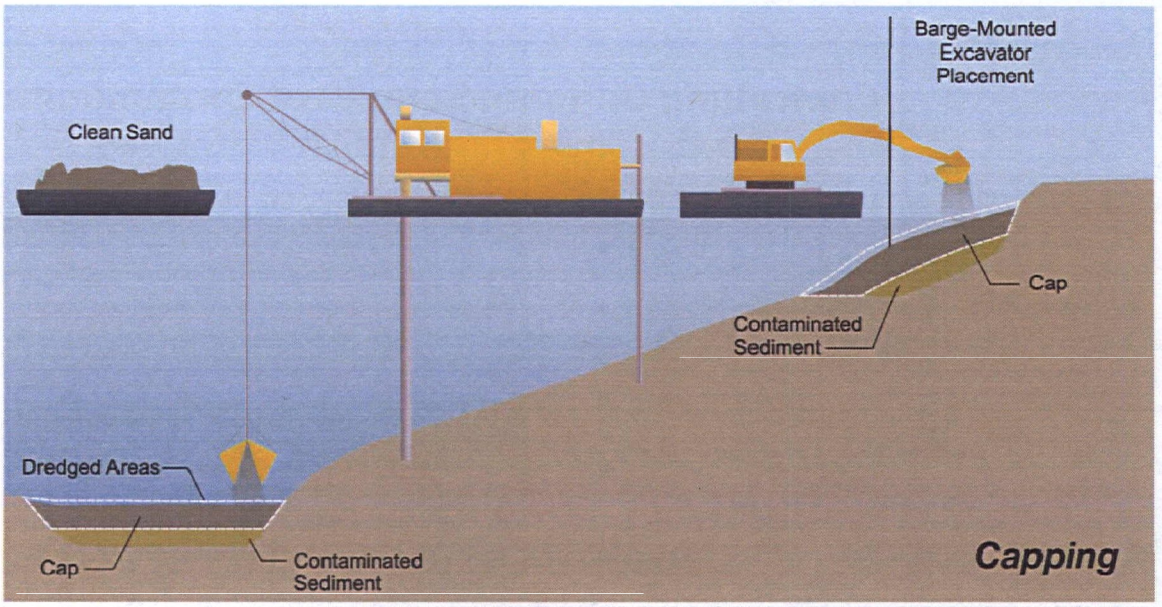
Removal



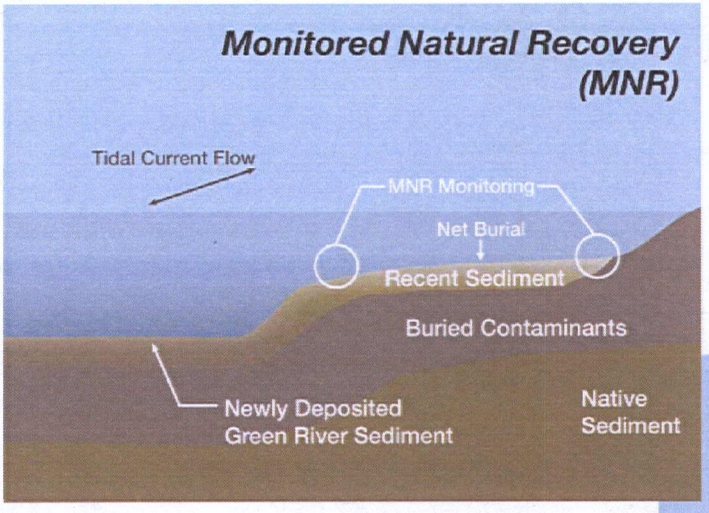
Dredging – removes contaminated sediments from the waterway. After removal, dredged material will be disposed in a permitted landfill.

Containment

Capping – covers the contaminated sediments with layers of sands, silts, gravel and rock designed to contain and isolate the contamination.

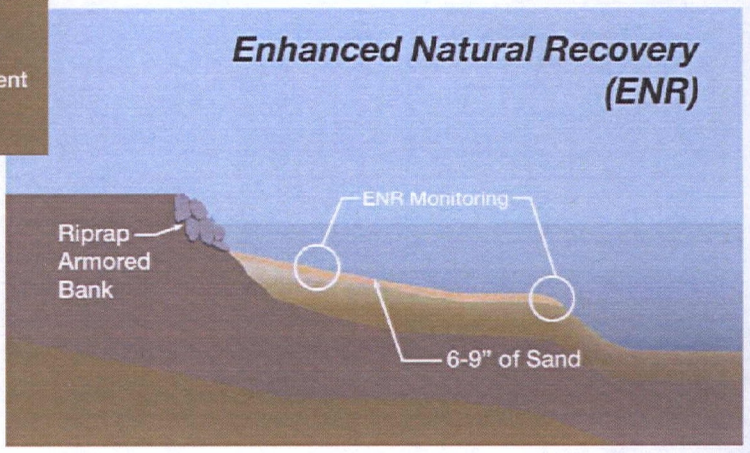


Natural Recovery



⇦ **Monitored natural recovery** – relies on the natural flow of cleaner sediments from upriver to cover contaminated sediments in the waterway. The clean sediments are monitored to measure the reduction in contamination over time.

Enhanced natural recovery – uses a thin layer of sand to cover the pollution and speed up the natural recovery process. Activated carbon or other materials may be added to caps or enhanced natural recovery areas to make the remaining contamination less harmful to bottom-dwelling creatures. Pilot testing of the activated carbon is needed to test the effectiveness of this relatively new technology.



For more information on cleanup technologies, please visit this web page: www.epa.gov/superfund/community/publications.htm#guides to see the list, "*Citizen's Guides to Cleanup Methods.*"

Controlling Ongoing Sources of Contamination to the Lower Duwamish Waterway

Ecology continues to work on the LDW Source Control Strategy (Strategy). The draft was published in December 2012. Ecology is revising the Strategy to address public comments from 2013. This Strategy is an integral part of the cleanup and will guide efforts to locate and reduce sources of pollution and protect the EPA's in-waterway cleanup.

The Strategy goals are to:

- Find and sufficiently control sources that contribute to sediment contamination before active in-waterway cleanup, and
- Minimize recontamination.

For more information, see Ecology's Frequently Asked Questions about the LDW Source Control Strategy at www.ecy.wa.gov/programs/tcp/sites_brochure/lower_duwamish/lower_duwamish_hp.html

What Part of the Duwamish is included in the ROD?

The northernmost portion of the Duwamish River is included in the cleanup area.

The Lower Duwamish Waterway Record of Decision Cleanup Early Action Areas

Community Participation Made a Difference

Community participation and input played an essential role in the development of the Proposed Plan and helped shape the cleanup Plan. The EPA worked closely with Tribes, community groups, and other stakeholders throughout the process. The EPA held five formal public meetings during the public comment period, including hosting a meeting entirely in Spanish in the South Park neighborhood. In addition to EPA-sponsored meetings, EPA representatives discussed the Proposed Plan at several meetings sponsored by the Duwamish River Cleanup Coalition (DRCC) and other organizations.

The EPA made several changes to the Plan that address public comments, including provisions to incorporate new data, work with waterway users to make the cleanup compatible with the many uses of the river, and to ensure that the navigation channel remains open for all uses.

Future Opportunities for Community Involvement

Although we are no longer accepting comments on the final Plan, we look forward to ongoing input from the community and key stakeholders as the cleanup proceeds. Your involvement and ideas can help shape the implementation of the cleanup as work moves forward.

Restoring Puget Sound

The cleanup of the Duwamish is part of a larger effort to restore Puget Sound, a region home to over four million people.

The Puget Sound ecosystem and wildlife that depends on it, such as orcas and salmon, are under environmental pressure because of polluted stormwater, habitat loss, shoreline development, toxic chemicals, and polluted tributaries, such as the Duwamish.

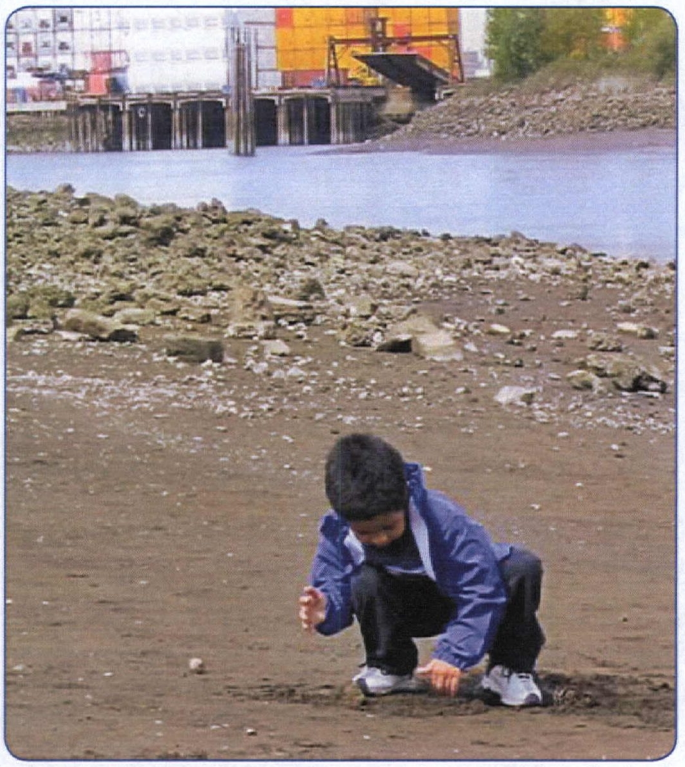
Agencies like the EPA, the Washington Department of Ecology, and the Puget Sound Partnership are developing solutions to restore Puget Sound. Cleaning up the Duwamish is a part of that process.

More information on that work can been found at www.epa.gov/pugetsound

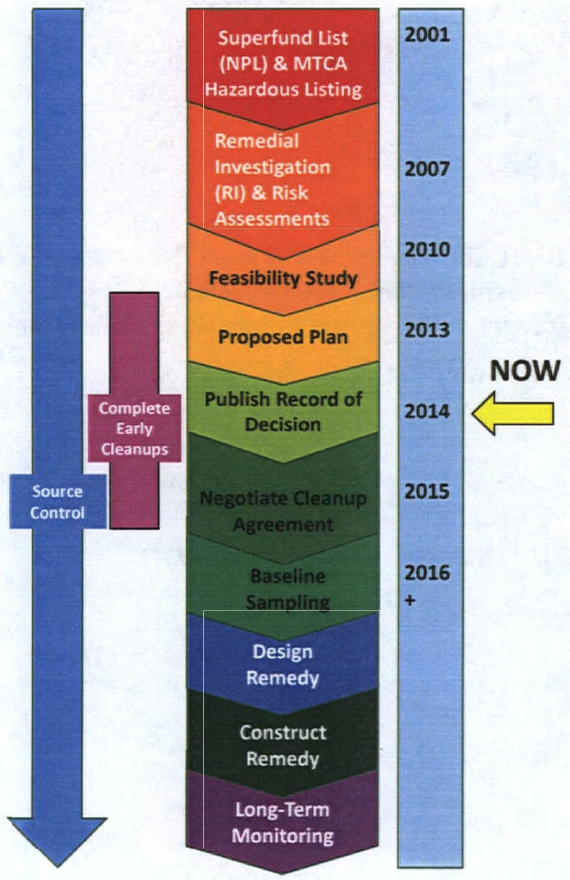
EPA's Plan Considers Environmental Justice

The EPA's Proposed Plan included a draft Environmental Justice (EJ) analysis, the first such analysis written for a Superfund site. The Superfund program has already begun implementing some of the recommendations made in the EJ Analysis and will implement more as the cleanup continues, for example:

- A Fishers Study is gathering information from people who harvest or consume seafood from the river;
- A community-based workgroup and information from the Fishers Study will help the EPA develop culturally appropriate institutional controls;
- Considering the use of green cleanup technologies to reduce air pollution; and
- Training community members to be eligible for cleanup jobs.



What Happens Next?



Putting the Final Plan into Action

The cleanup of the Duwamish is already underway. Some of the most contaminated areas have already been cleaned up and others will be completed in 2015.

Ecology, the EPA, and local governments have made great progress to date in controlling sources of pollution to the Duwamish and this work will continue into the future. On-the-ground work under the Plan will start after the EPA negotiates an agreement with parties responsible for the contamination and after the parties design the cleanup.

For More Information

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Web Sites

Find EPA's Duwamish ROD web site at
http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/LDuwamish

Documents

The Record of Decision, Responsiveness Summary, and other select documents about the cleanup can be found at:

Seattle Public Library South Park Branch
8604 Eighth Avenue South, at South Cloverdale St.
Seattle, WA 98108
(206) 615-1688

EPA Seattle Office
Superfund Records Center, 1200 Sixth Avenue
Seattle, WA 98101
(206) 553-4494 or (800) 424-4372

Do you eat fish from the Lower Duwamish?

The main way people are exposed to the chemicals in the Duwamish is by eating the seafood that live in the river year round. **Don't eat** resident fish (like the English sole shown in the picture), shellfish or crab from the waterway.

Salmon are a healthier choice. They spend most of their lives in the ocean. Everyone can safely eat 2 to 3 meals a week of coho, chum, pink, and sockeye salmon.

LIMIT Chinook salmon to **one (1)** meal a week and resident Blackmouth Chinook salmon (caught in the winter) to **two (2)** meals a month.

Learn more at www.doh.wa.gov/fish

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